

**PATENT COOPERATION TREATY**  
**PCT**  
**INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY**  
(Chapter II of the Patent Cooperation Treaty)  
(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 1040601 PCT	<b>FOR FURTHER ACTION</b>		See Form PCT/PEA/416
International application No. PCT/IB2004/001917	International filing date (day/month/year) 18.06.2004	Priority date (day/month/year) 19.06.2003	

International Patent Classification (IPC) or national classification and IPC  
B26D7/26, B23Q17/22

Applicant  
SACMI-COOPERATIVA MECCANICI IMOLA-SOC.COOP.A R.L.

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 15 sheets, including this cover sheet.
3. This report is also accompanied by ANNEXES, comprising:
  - a.  (*sent to the applicant and to the International Bureau*) a total of 12 sheets, as follows:
    - sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).
    - sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.
  - b.  (*sent to the International Bureau only*) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).
4. This report contains indications relating to the following items:
  - Box No. I Basis of the opinion
  - Box No. II Priority
  - Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
  - Box No. IV Lack of unity of invention
  - Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
  - Box No. VI Certain documents cited
  - Box No. VII Certain defects in the international application
  - Box No. VIII Certain observations on the international application

Date of submission of the demand 02.05.2005	Date of completion of this report 19.09.2005
Name and mailing address of the international preliminary examining authority:  European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016	Authorized Officer Vaglietti, G Telephone No. +31 70 340-2935

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**IAP20 Rec'd PCT/PTO 16 DEC 2005**

**Box No. I Basis of the report**

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
  - This report is based on translations from the original language into the following language, which is the language of a translation furnished for the purposes of:
    - international search (under Rules 12.3 and 23.1(b))
    - publication of the international application (under Rule 12.4)
    - international preliminary examination (under Rules 55.2 and/or 55.3)
2. With regard to the **elements\*** of the international application, this report is based on (*replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report*):
  - a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing

**Description, Pages**

1-33 as originally filed

**Claims, Numbers**

1-85 received on 30.05.2005 with letter of 27.05.2005

**Drawings, Sheets**

1/19-19/19 as originally filed

3.  The amendments have resulted in the cancellation of:
  - the description, pages
  - the claims, Nos.
  - the drawings, sheets/figs
  - the sequence listing (*specify*):
  - any table(s) related to sequence listing (*specify*):
4.  This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
  - the description, pages
  - the claims, Nos.
  - the drawings, sheets/figs
  - the sequence listing (*specify*):
  - any table(s) related to sequence listing (*specify*):

\* If item 4 applies, some or all of these sheets may be marked "superseded."

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**Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability**

1. The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non-obvious), or to be industrially applicable have not been examined in respect of:

the entire international application,

claims Nos. 10+32+33, 34-38, 73-85, as far as claims 35-38, 73-85 depend from claim 33; 10+35, 36-38, 73-85 as far as claims 38, 73-85 depend from claim 35; 39+40, 41, 42, 72-85 as far as claims 41, 42, 72-85 depend from claim 40; 39+41, 42, 72-85 as far as claims 42, 72-85 depend from claim 41; 39+74, 75-85, as far as claims 82-85 depend from claim 74; 39+82, 83-85; 43-85 as far as claims 72-85 depend from claims 43, 48, 57, 61 and 70

because:

the said international application, or the said claims Nos. relate to the following subject matter which does not require an international preliminary examination (specify):

the description, claims or drawings (*indicate particular elements below*) or said claims Nos. are so unclear that no meaningful opinion could be formed (specify):

the claims, or said claims Nos. are so inadequately supported by the description that no meaningful opinion could be formed.

no international search report has been established for the said claims Nos. 10+32+33, 34-38, 73-85, as far as claims 35-38, 73-85 depend from claim 33; 10+35, 36-38, 73-85 as far as claims 38, 73-85 depend from claim 35; 39+40, 41, 42, 72-85 as far as claims 41, 42, 72-85 depend from claim 40; 39+41, 42, 72-85 as far as claims 42, 72-85 depend from claim 41; 39+74, 75-85, as far as claims 82-85 depend from claim 74; 39+82, 83-85; 43-85 as far as claims 72-85 depend from claims 43, 48, 57, 61 and 70

the nucleotide and/or amino acid sequence listing does not comply with the standard provided for in Annex C of the Administrative Instructions in that:

the written form

has not been furnished

does not comply with the standard

the computer readable form

has not been furnished

does not comply with the standard

the tables related to the nucleotide and/or amino acid sequence listing, if in computer readable form only, do not comply with the technical requirements provided for in Annex C-bis of the Administrative Instructions.

See separate sheet for further details

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**Box No. IV Lack of unity of Invention**

1.  In response to the invitation to restrict or pay additional fees, the applicant has:
  - restricted the claims.
  - paid additional fees.
  - paid additional fees under protest.
  - neither restricted nor paid additional fees.
2.  This Authority found that the requirement of unity of invention is not complied with and chose, according to Rule 68.1, not to invite the applicant to restrict or pay additional fees.
3. This Authority considers that the requirement of unity of invention in accordance with Rules 13.1, 13.2 and 13.3 is:
  - complied with.
  - not complied with for the following reasons:  
**see separate sheet**
4. Consequently, this report has been established in respect of the following parts of the international application:
  - all parts.
  - the parts relating to claims Nos. 1-39, 42, 73-85 .

**Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Yes: Claims	1-9, 14-38, 42, 73-85
	No: Claims	10-13, 39
Inventive step (IS)	Yes: Claims	1-9, 16-38, 73-85
	No: Claims	10-15, 39, 42
Industrial applicability (IA)	Yes: Claims	1-39, 42, 73-85
	No: Claims	

2. Citations and explanations (Rule 70.7):

**see separate sheet**

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**Re Item III**

**Non-establishment of opinion with regard to novelty, inventive step and industrial applicability**

- 1 No examination has been conducted for the groups of claims listed in the following paragraph, because no search has been established for the originally filed groups of claims to which they correspond. The originally filed groups of claims are listed in the Form PCT/ISA/206: INVITATION TO PAY ADDITIONAL FEES.
  - 1.1 Claims 10+32+33, 34-38, 73-85, as far as claims 35-38, 73-85 depend from claim 33; claims 10+35, 36-38, 73-85 as far as claims 38, 73-85 depend from claim 35; claims 39+40, 41, 42, 72-85 as far as claims 41, 42, 72-85 depend from claim 40; claims 39+41, 42, 72-85 as far as claims 42, 72-85 depend from claim 41; claims 39+74, 75-85, as far as claims 82-85 depend from claim 74; claims 39+82, 83-85; claims 43-85 as far as claims 72-85 depend from claims 43, 48, 57, 61 and 70.

**Re Item IV**

**Lack of unity of invention**

- 1 Reference is made to the following documents:

D1: FR-A-1 128 678  
D2: DEGARMO ET AL.: "Materials and Processes in Manufacturing" 1984,  
MACMILLAN PUBLISHING COMPANY, U.S.A., XP002297815.  
D3: FR-A-2146043

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D4: EP-A-1243520

2 According to the state of the art as represented by D1, D2, D3 and D4 it would appear that the claims can be regrouped in 12 groups of claims, each concerning a different invention. The different groups of claims are detailed hereafter. This observation is based on the following reasons:

3 D1 (references between brackets refer to this document) discloses a device for positioning a tool comprising a tool holder (2, 13) and an adjustable member (cross slide (4), see page 1, right column, lines 18-20) associated therewith, whereby a stop member (12) tightens the tool holder (2, 13) against the adjustable member (4). It is observed that for the skilled person it is implicit that the cross slide of a lathe constitutes an adjustable member (see e.g. D2).

3.1 In the light of what is already disclosed by D1, that is:

a) the tilted faces (10) of figure 4; the translation necessarily produced by clamping the stop member (12); the tilted faces (13); the sliding surfaces of the cross slide (4), and

in the light of what would be obvious to a man skilled in the art when precise alignments are required, that is:

b) the use of a micrometric screw,

it appears that the difference between the device disclosed in D1 and the device described in a first independent group of claims is disclosed in claim 1 and, as far as this claim can be interpreted, concerns, in combination:

toolholder means movable along a registration direction in which the tool is moved towards and away from an object to be processed and an adjustable member movable transversely of said registration direction, the toolholder means being interposed between the stop member and the adjustable member along the registration direction.

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This constitutes apparently the Potential Special Technical Feature (PSTF) of a first group of claims (claims 1-9, 32-39, 42, 73-85 as far as claims 32-38, 73-85 depend from claim 1), and the problem to be solved can be construed as clamping a toolholder in its operative position.

3.2 Furthermore it is observed that D4 discloses all the features of claims 39, and in the light of this same document the features of claim 42 are obvious, see for the reasons the paragraph 3.6 hereafter. Also these two claims are hence considered a part of the first group.

3.3 D1 discloses a device for positioning a tool comprising a tool holder (2, 13) and an adjustable member (cross slide (4), see page 1, right column, lines 18-20) associated therewith, whereby a stop member (12) tightens the tool holder (2, 13) against the adjustable member (4). It is observed that for the skilled person it is implicit that the cross slide of a lathe constitutes an adjustable member (see e.g. D2). Hence D1 discloses all the features of claim 10.

It would thus appear that, in the light of what would be obvious to a man skilled in the art, the difference between the device disclosed in D1 and the device described in a second group of claims (claims 10+11, 12-38, 73-85, as far as claims 32-38, 73-85 depend from claim 11) is disclosed in claim 11 and, as far as this claim can be interpreted, concerns a device for positioning a tool comprising an adjustable member comprising abutting means.

This constitutes apparently the PSTF of a second group of claims, and the problem to be solved can be construed as clamping a toolholder in its operative position. Also the claims of this group are hence considered a part of the first group.

3.4 Means for monitoring tools being trivial (see the graduations in D2, figure 20-5, concerning claim 32), as well as position sensor means (see D3, figure 9, concerning claim 34), it would appear that, in the light of what would be obvious to a man skilled in the art, the difference between the device disclosed in D1 and the device described in a third group of claims (claims 10+32+33, 34-38, 73-85, as far as claims 35-38, 73-85 depend from claim 33) is disclosed in claim 33 and concerns a device

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for positioning a tool having monitoring means comprising a camera. This constitutes apparently the PSTF of a third group of claims, and the problem to be solved can be construed as detecting the position of a tool without contact.

3.5 Means for monitoring workpieces, and the idea of monitoring a workpiece being generally known, it would appear that, in the light of what would be obvious to a man skilled in the art, the difference between the apparatus disclosed in D1 and the device described in a fourth group of claims (claims 10+35, 36-38, 73-85 as far as claims 38, 73-85 depend from claim 35) is disclosed in claim 35 and concerns a device for positioning a tool having means for detecting characteristics of a workpiece.

This constitutes apparently the PSTF of a fourth group of claims, and the problem to be solved can be construed as simplifying the positioning of means for monitoring workpieces.

3.6 Since the features "of an apparatus for, etc.", as far as claim 38 can be interpreted, do not imply that an apparatus for the production of caps is claimed, it would appear that, in the light of what would be obvious to a man skilled in the art, the features of this claim are not new, since the tools of D1 can produce an incision on a cap. An objection of lack of unity is therefore not raised for this claim.

3.7 Document D4 (see figure 3) discloses an apparatus for the production of closure caps comprising first operating (transfer) turntable means (21) with first operating transfer means (22.1), and further comprising operating (transfer) turntable means (23) with further operating transfer means (25.6), whereby transfer turntable means (9.1-9.6, 24) are interposed between the operating (transfer) turntable means. Thus D4 discloses all the features of claim 39.

Therefore it would appear that, in the light of what would be obvious to a man skilled in the art, i.e., concerning claim 42, the addition of a further transfer turntable, the difference between the apparatus disclosed in D4 and the apparatus described in a fifth group of claims (claims 39+40, 41, 42, 72-85 as far as claims 41, 72-85 depend from claim 40) is disclosed in claim 40 and concerns an apparatus for the production of caps where the first operating means comprises folding means.

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This constitutes apparently the PSTF of a fifth group of claims, and the problem to be solved can be construed as providing an apparatus where a folding operation on a cap is performed on a turntable before subsequent operations on the cap are performed on further turntables.

3.8 In the light of what would be obvious to a man skilled in the art, see paragraph 3.6 above, the difference between the apparatus disclosed in D4 and the apparatus described in a sixth group of claims (claims 39+41, 42, 72-85 as far as claims 72-85 depend from claim 41) is disclosed in claim 41 and concerns an apparatus for the production of caps where the first operating means comprises cutting means. This constitutes apparently the PSTF of a sixth group of claims, and the problem to be solved can be construed as providing an apparatus where a cutting operation on a cap is performed on a turntable after previous operations on the cap are performed on preceding turntables.

3.9 In the light of what would be obvious to a man skilled in the art, see paragraph 3.6 above, the difference between the apparatus disclosed in D4 and the apparatus described in a seventh group of claims (claims 39+74, 75-85, as far as claims 82-85 depend from claim 74) is disclosed in claim 74 and concerns an apparatus for the production of caps comprising a pressurized air recovery device. This constitutes apparently the PSTF of a seventh group of claims, and the problem to be solved can be construed as removing caps from the apparatus.

4 In the light of what would be obvious to a man skilled in the art, see paragraph 3.6 above, the difference between the apparatus disclosed in D4 and the apparatus described in a eighth group of claims (claims 39+82, 83-85) is disclosed in claim 82 and concerns an apparatus for the production of caps comprising heating means. This constitutes apparently the PSTF of a eighth group of claims, and the problem to be solved can be construed as reducing the risk of breakage during the folding of the flaps of a closure cap.

4.1 In the light of what would be obvious to a man skilled in the art, see paragraph 3.6 above, the difference between the apparatus disclosed in D4 and the apparatus described in a ninth group of claims (claims 43-47, 72-85 as far as claims 72-85

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depend from claim 43) is disclosed in claim 43 and concerns an apparatus for the production of caps comprising caps monitoring means interposed between operating means.

This constitutes apparently the PSTF of a ninth group of claims, and the problem to be solved can be construed as having a closure caps manufacturing apparatus which automatically adapts the process to the detected physical features of the caps.

4.2 In the light of what would be obvious to a man skilled in the art, see paragraph 3.6 above, the difference between the apparatus disclosed in D4 and the apparatus described in a tenth group of claims (claims 48-56, 72-85 as far as claims 72-85 depend from claim 48) is disclosed in claim 48 and concerns an apparatus for the production of caps comprising insulated chamber means.  
This constitutes apparently the PSTF of a tenth group of claims, and the problem to be solved can be construed as subjecting the caps to a special treatment.

4.3 In the light of what would be obvious to a man skilled in the art, the difference between the apparatus disclosed in D4 and the apparatus described in a eleventh group of claims (claims 57-60, 72-85 as far as claims 72-85 depend from claim 57) is disclosed in claim 57 and concerns an apparatus for the production of caps comprising sensor means for monitoring the position of cutting means.  
This constitutes apparently the PSTF of an eleventh group of claims, and the problem to be solved can be construed as adjusting the position of the cutting means of an apparatus for manufacturing caps.

4.4 In the light of what would be obvious to a man skilled in the art, the difference between the apparatus disclosed in D4 and the apparatus described in a twelfth group of claims (claims 61-69, 72-85 as far as claims 72-85 depend from claim 61) is disclosed in claim 61 and concerns an apparatus for the production of caps comprising articulated folding means.  
This constitutes apparently the PSTF of an twelfth group of claims, and the problem to be solved can be construed as reducing the axial stress exerted on a cap by a folding means.

4.5 In the light of what would be obvious to a man skilled in the art, the difference

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between the apparatus disclosed in D4 and the apparatus described in a thirteenth group of claims (claims 70-85, as far as claims 72-85 depend from claim 70) is disclosed in claim 70 and concerns an apparatus for the production of caps comprising cutting means which are coaxial to folding means. This constitutes apparently the PSTF of a thirteenth group of claims, and the problem to be solved can be construed as improving the reliability of the cutting step in an apparatus for manufacturing caps.

- 5 It would appear that neither the technical problem , nor the Potential Special Technical Features (PSTF) proposed by the before mentioned groups of claims are the same or similar. Therefore there is no technical correspondence between the problems, nor do they show any corresponding technical effect, so that the potential inventive concepts of the different groups of claims fails to demonstrate a correspondence with each other's potential inventive concept, as required by rule 13.1 and 2 PCT.
- 5.1 Apparatus claim 72 relates to an apparatus for the production of caps comprising all the features of any of the claims 39-71. Thus, mutatis mutandis, the same considerations as per each of the said claims 39-71 applies. Claim 72 hence can be considered as part of the groups of claims fifth, sixth, and ninth to thirteenth, as detailed in the paragraphs 3.6-4.4 above.
- 5.2 Apparatus claim 73 relates to an apparatus for the production of caps comprising all the features of any of the claims 1-72. Thus, mutatis mutandis, the same considerations as per each of the said claims 1-72 applies. Claim 73 hence can be considered as part of the groups of claims from first to sixth and ninth to thirteenth, as detailed in the paragraphs 3.1-4.4 above.
- 5.4 The preliminary opinion will be established for the first group of claims, that is: claims 1-9, 32-39, 42, 73-85 as far as claims 32-38, 73-85 depend from claim 1 and claims 10+11, 12-38, 73-85, as far as claims 32-38, 73-85 depend from claim 11.

**Re Item V**

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**Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

**1 Reference is made to the following documents:**

- D1: FR-A-1 128 678 (JEANNERET) 9 January 1957 (1957-01-09)
- D2: DEGARMO ET AL.: "Materials and Processes in Manufacturing" 1984, MACMILLAN PUBLISHING COMPANY, U.S.A., XP002297815
- D3: FR-A-2 146 043 (HARDINGE BROTHERS INC) 23 February 1973 (1973-02-23)
- D4: EP-A-1 243 520 (OBERBURG ENGINEERING AG) 25 September 2002 (2002-09-25)
- D5: US-A-4 013 496 (AMBERG STEPHEN W) 22 March 1977 (1977-03-22)
- D6: US-A-6 155 151 (REICHERT PETER) 5 December 2000 (2000-12-05)
- D7: US-A-4 553 461 (BELONGIA LARRY P) 19 November 1985 (1985-11-19)

**2 Document D1 (references between brackets refer to this document), which is considered to constitute the closest prior art for claim 1, discloses a device for positioning a tool comprising a tool holder (2, 13) and an adjustable member (cross slide (4), see page 1, right column, lines 18-20) associated therewith, whereby a stop member (12) tightens the tool holder (2, 13) against the adjustable member (4). It is observed that for the skilled person it is implicit that the cross slide of a lathe constitutes an adjustable member (see e.g. D2).**

The subject-matter of claim 1 therefore differs from this known device in that

the toolholder means are movable along a registration direction in which the tool is moved towards and away from an object to be processed and the adjustable member is movable transversely of said registration direction, the toolholder means being interposed between the stop member and the adjustable member along the registration direction.

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The subject-matter of claim 1 is therefore novel (Article 33(2) PCT).

The problem to be solved by the present invention may therefore be regarded as clamping a toolholder in its operative position.

The solution to this problem proposed in claim 1 of the present application is considered as involving an inventive step (Article 33(3) PCT) for the following reasons:

The examples available in the prior art are so distant from the alternative solution proposed in claim 1, that the solution cannot be derived from the available prior art.

- 2.1 Claims 2-9, 32-38, 73-85 have been considered dependent on claim 1 and as such also meet the requirements of the PCT with respect to novelty and inventive step.
- 2.2 D4 discloses all the features of claims 39; this claim is thus not new, see for the reasons paragraph 3.6 under Item IV. In the light of this same document the features of claim 42 are obvious. These claims thus do not comply with the requirements of the PCT concerning novelty and/or inventive step.
- 3 Document D5, considered to constitute the closest prior art for claim 11, discloses in figure 16 a device showing all the features of claim 10; this claim is thus not new. Further, figure 16 of this document shows that an adjustable member (76) comprises means (the tip of the members 76) abutting the toolholder (69), which means are, via a threading, associated with a block (74) integral with a frame (70) of the device. Therefore the present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claim 11 is not new in the sense of Article 33(2) PCT.
  - 3.1 Dependent claims 12-15 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of novelty and/or inventive step, the reasons being as follows:
  - 3.2 In the light of what is already disclosed by D5 the features of claim 12 do not meet the requirements of the PCT in respect of novelty.

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In the light of what is already disclosed by D7 (see figure 5) the features of claim 13 do not meet the requirements of the PCT in respect of novelty, and the features of claim 14 do not meet the requirements of the PCT in respect of inventive step (Article 33(3) PCT), since the features of claim 14 concern minor obvious modifications of the device of claim 13.

The features of claim 15 do not meet the requirements of the PCT in respect of inventive step (Article 33(3) PCT), since these features concern minor obvious modifications of an abutting means known in the art (see D6, figure 2).

3.3 Document D1, which is considered to represent the most relevant state of the art for claim 16, discloses a device from which the subject-matter of claim 16 differs in that it comprises in combination:

Abutting means comprising a head of a screw provided with a shaft screwable in the block, and a removable spacer between the active zone of the abutting means and the block, whereby the spacer is provided with a passage for the shaft of the screw, and whereby for reasons of clarity (Article 6 PCT) it has been considered that the spacer is positioned between the head of the screw and the block.

The subject-matter of claim 16 is therefore novel (Article 33(2) PCT).

The problem to be solved by the present invention may therefore be regarded as:

Avoiding accidental movement of the abutting means.

3.4 The solution to this problem proposed in claim 16 of the present application is considered as involving an inventive step (Article 33(3) PCT) for the following reasons:

There are no disclosures in the prior art which could make the combination of features of claim 16 obvious when applied to abutting means for a toolholder.

3.5 Claims 17-38 and 73-85 have been considered to be dependent from claim 16 and

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as such also meet the requirements of the PCT with respect to novelty and inventive step.